



Case Study 3: Healthcare Facilities

Research response 2: Non-Visual

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Case Study 3: Healthcare Facilities

Research response 2: Non-Visual

Lone Mandrup Stidsen

Phd

Department of civil Engineering, Aalborg University

Denmark, 2014

Background

Lone Mandrup Stidsen

2013_ Ph.D. Aalborg university, Department of Civil Engineering

2006_ Textile Designer, Kolding School of Design (DK)

1999_ Primary School teacher, Silkeborg (DK)



Lighting healthcare facilities


2004_ Hillary Dalke_ Lighting and Color for Hospital Design

2004_ Ulrich, Roger: Evidence Based Design

2006 Jain Malkin – Visual reference to evidence based design (US)

2009_ Anne Katrine Frandsen – Helende arkitektur (DK)






JAIN MALKIN INC.
INTERIOR ARCHITECTURE FOR HEALTHCARE

HOME
THE FIRM
CASE STUDIES
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NEWS

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Patient Room

Acute Care

Ambulatory Care

Medical and Dental Office Design

Long-term Care and Senior Living

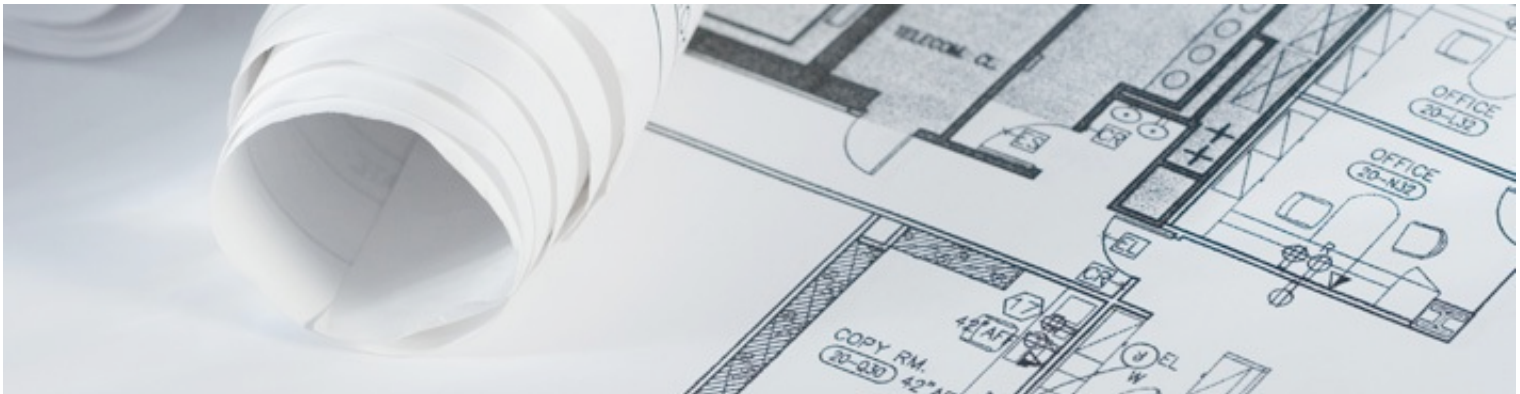
Medical Education and Physician Amenities

Project: Indu & Raj Soin Medical Center
Location: Beavercreek, Ohio
Architect: HOK

In this hospital single-bed patient rooms employ evidence-based design with conveniently located large handwashing sinks, noise-reduction materials, ample space for families, bathroom located on the headwall (close to the bed to reduce falls), and expansive windows. The room is acuity-adaptable to reduce patient transport, and offers patients control of temperature and variable lighting options. The patient's view from the bed includes a care board, large TV monitor, plant shelf, artwork, and casework that conceals soiled linen and trash carts. A ceiling-mounted patient lift reduces staff injuries.

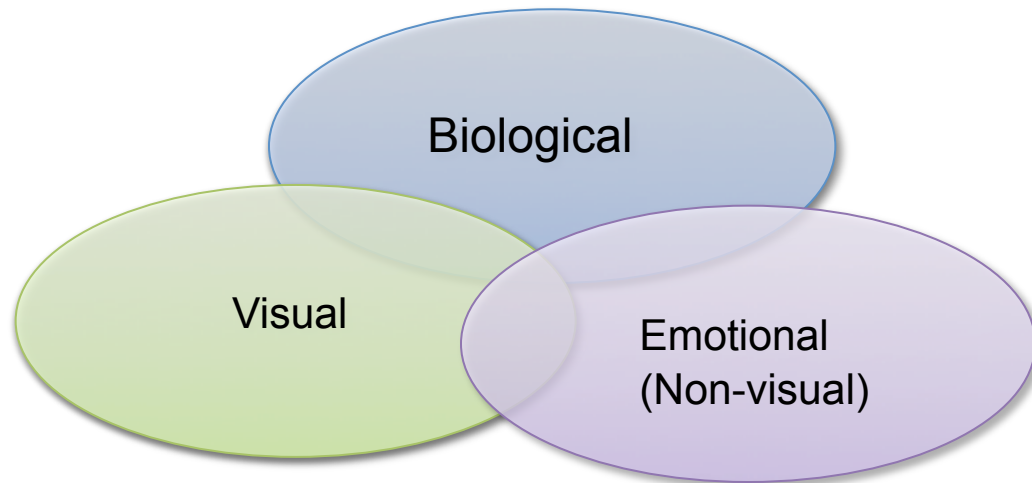


The Danish situation



Light + Behavior: Light's Influence on Human Behavior

HOSPITAL LIGHTING



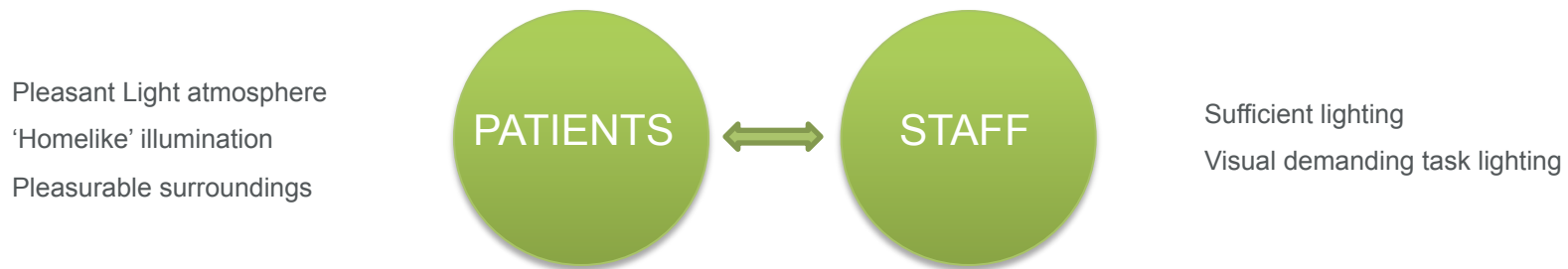
Quality of Light

3. Light received by the eye
2. Light supporting human needs
1. Light level on horizontal plane



Cuttle C, 2010 'Towards the third step of lighting profession

Regulation for Light in Danish Hospitals (DS703)



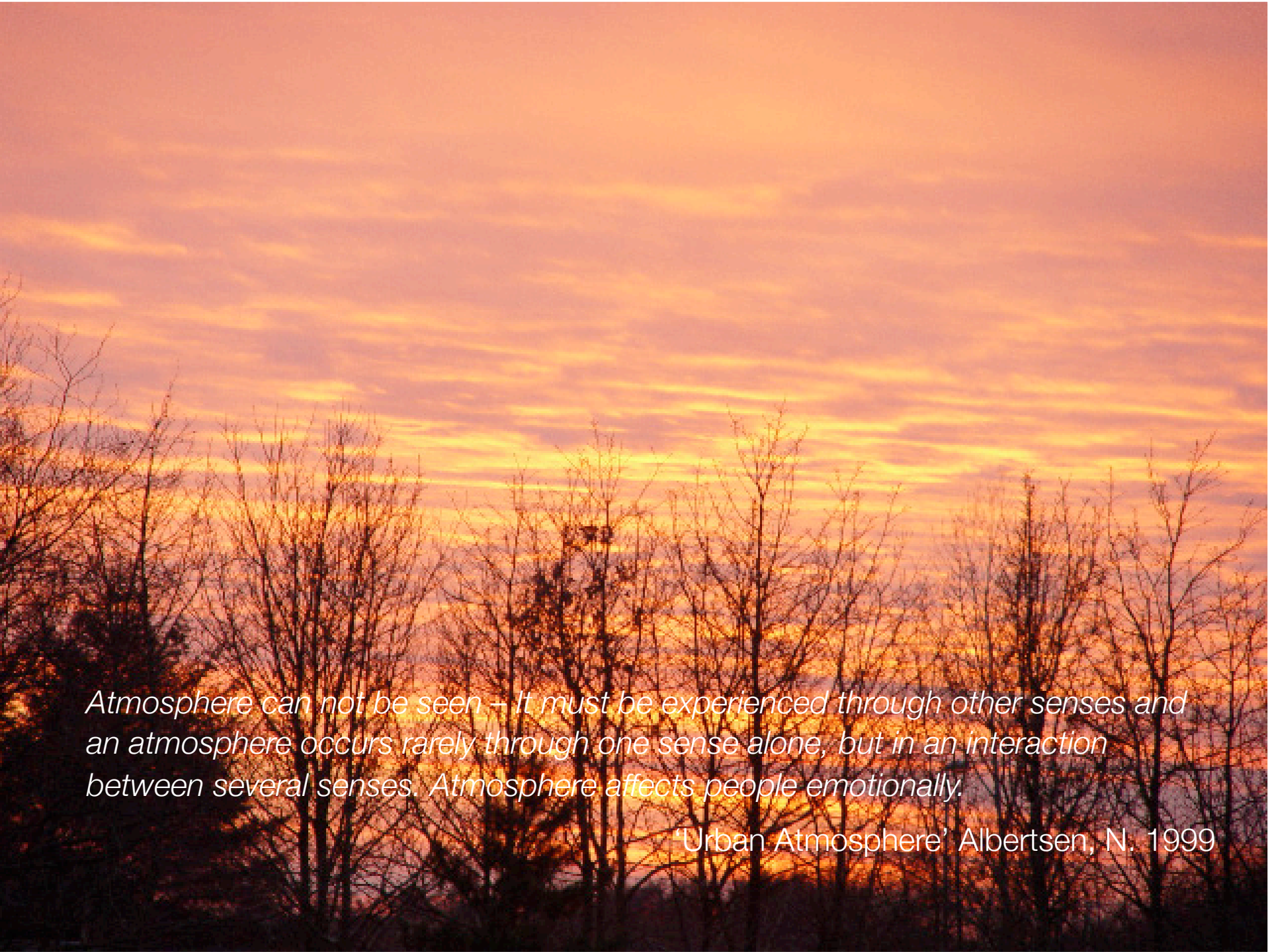
Patients only have few visual tasks. They require pleasurable surroundings supported by the illumination. Staff however need sufficient lighting to perform work that is often highly visually demanding. The light color must be selected according to the patients' needs for a pleasant 'homelike' illumination, which in most cases is color temperatures no higher than 3000K and a fairly good color rendering of $Ra > 80$

?

‘Homelike and Pleasant’

=

‘Pleasant atmosphere’



Atmosphere can not be seen – It must be experienced through other senses and an atmosphere occurs rarely through one sense alone, but in an interaction between several senses. Atmosphere affects people emotionally.

'Urban Atmosphere' Albertsen, N. 1999

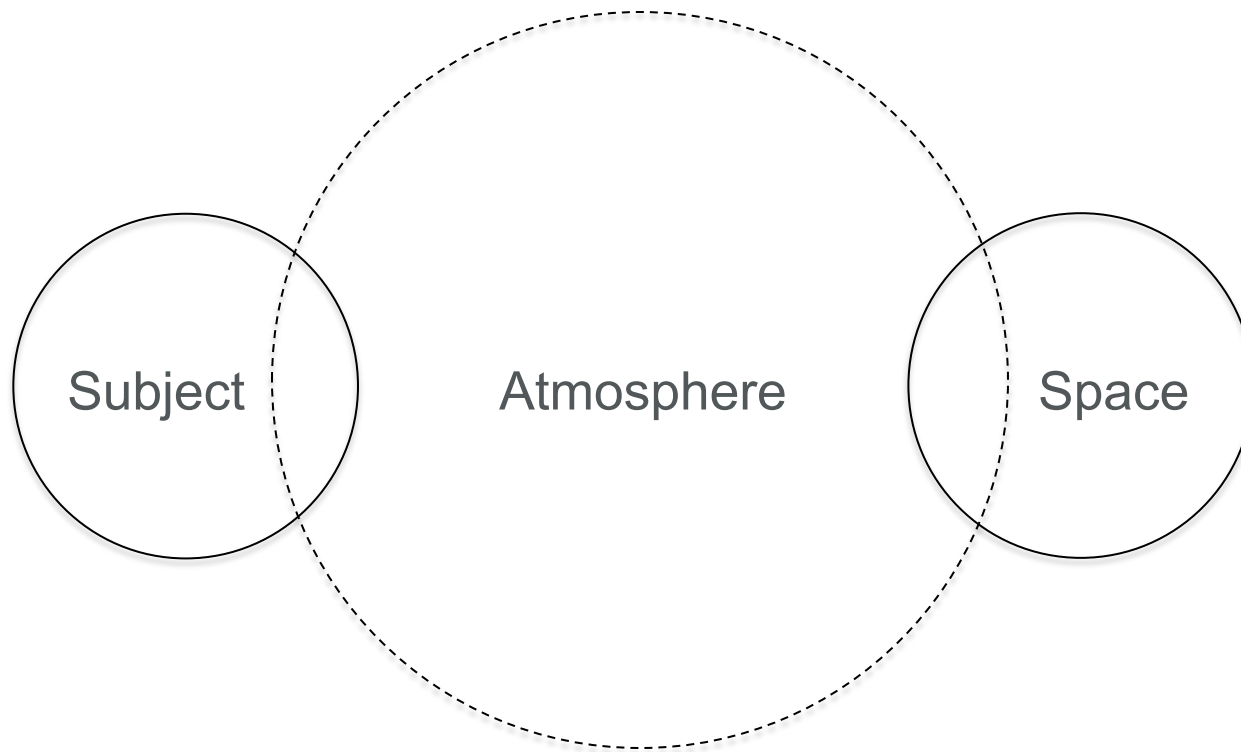


Atmosphere is not 'A stamp of approval' for a good taste or a correct architectural understanding. Atmosphere is momentary phenomenon available everywhere at all times.



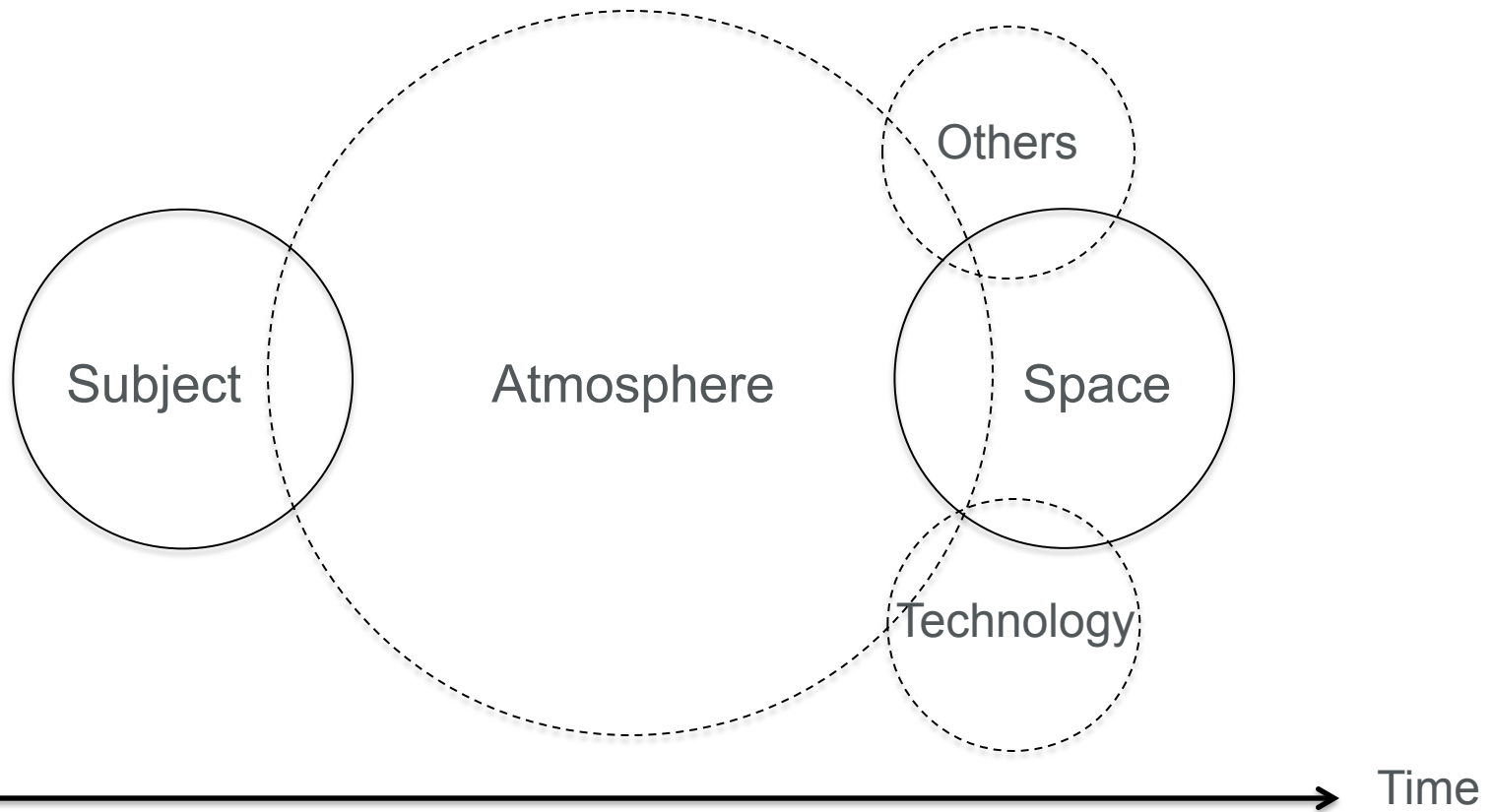


EXPERIENCING ATMOSPHERE



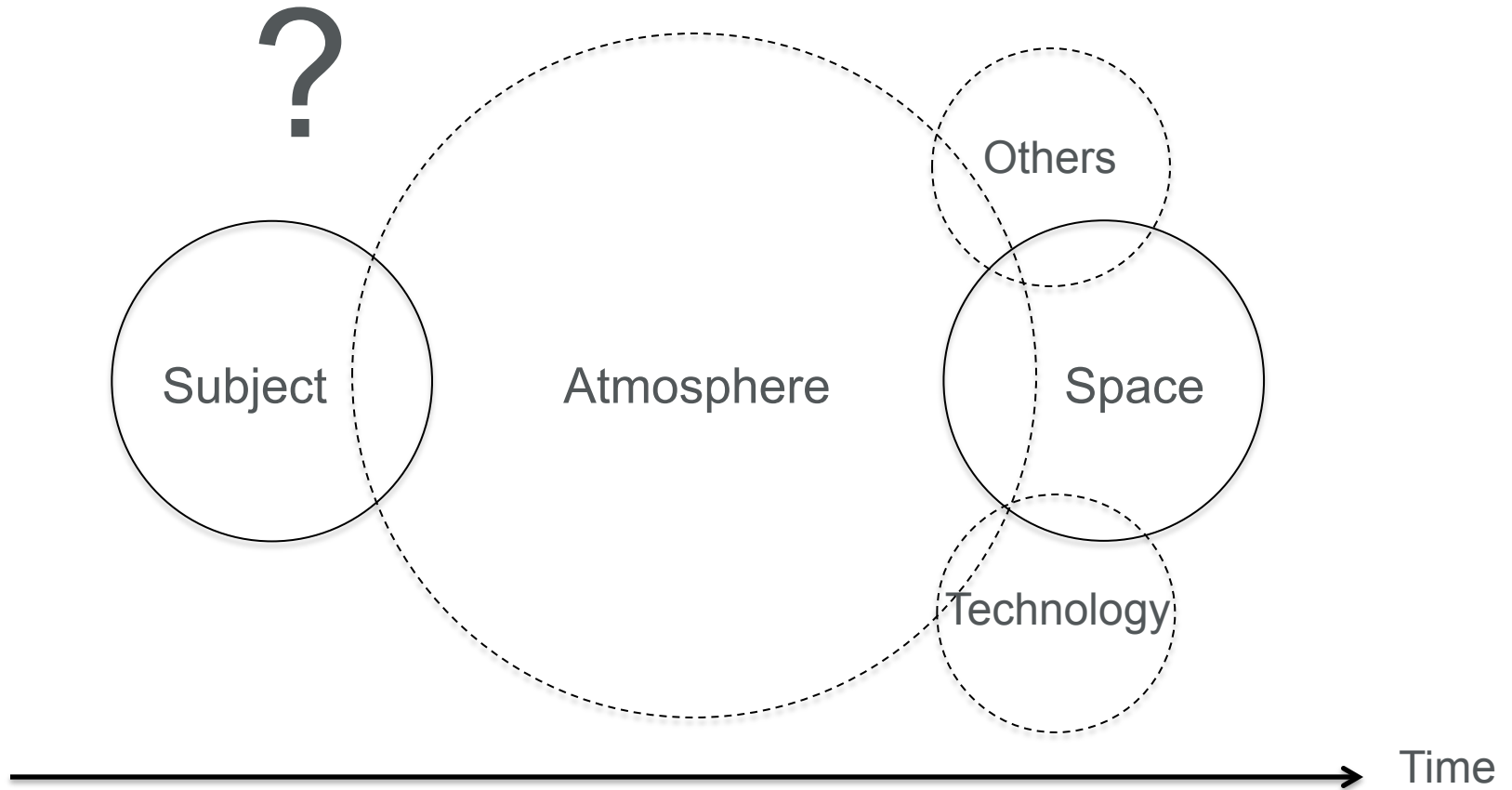
‘The Concept of Atmosphere’, Böhme, Gernot 1993

EXPERIENCING ATMOSPHERE



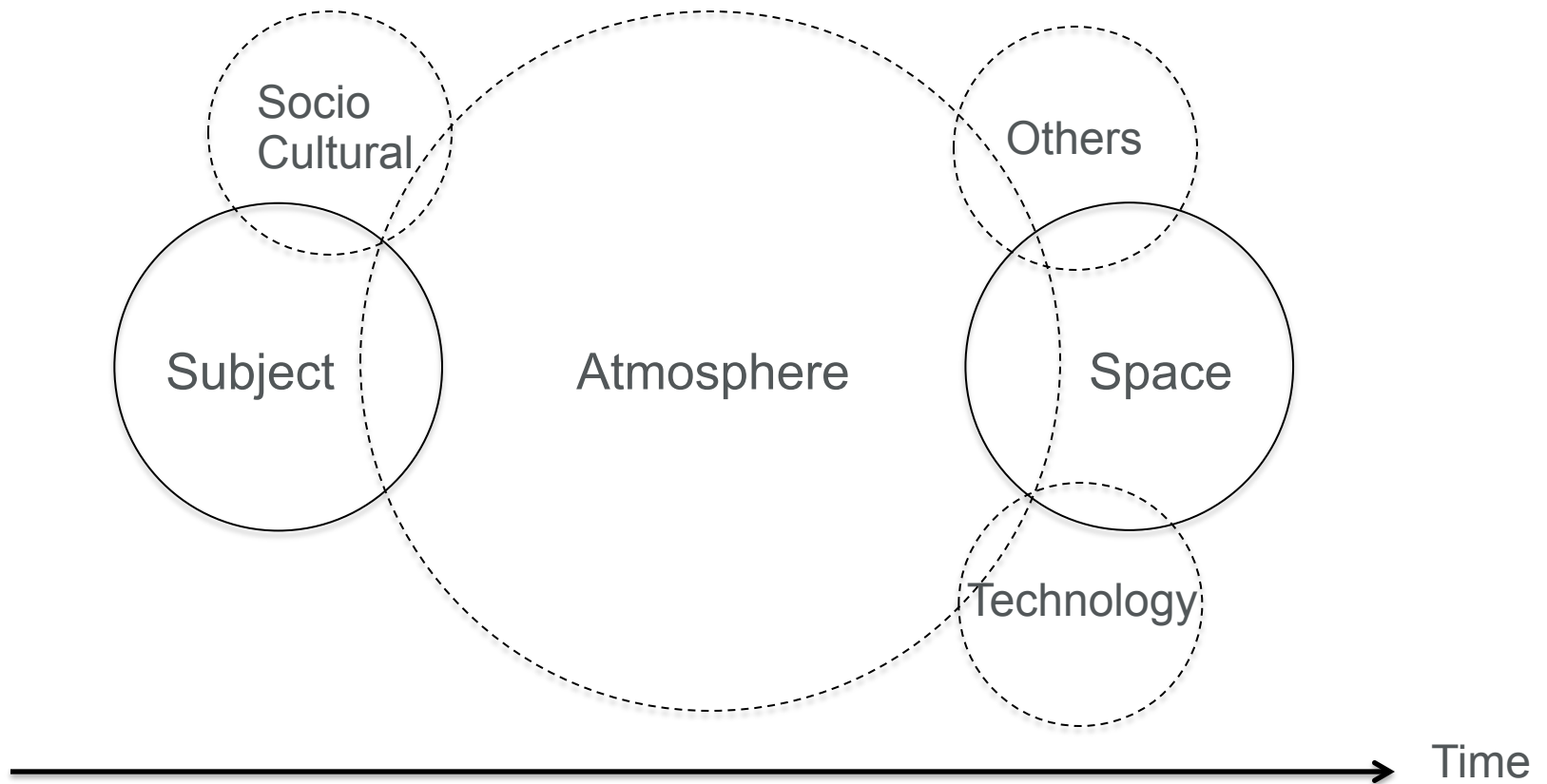
Dalsgaard, Kortbak – Staged atmosphere into a design scene

EXPERIENCING ATMOSPHERE

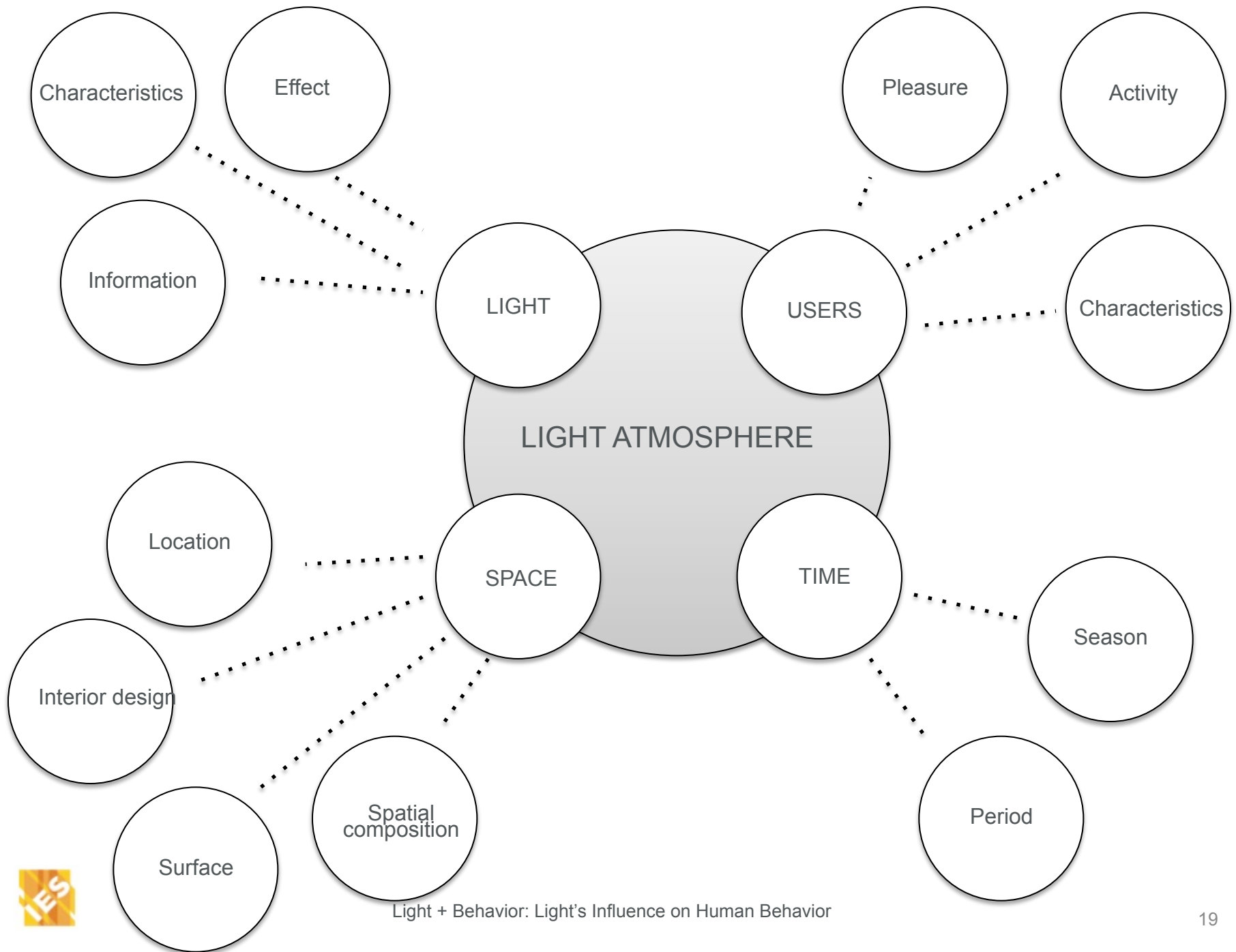


Symbolic interactionism – Herbert Blumer

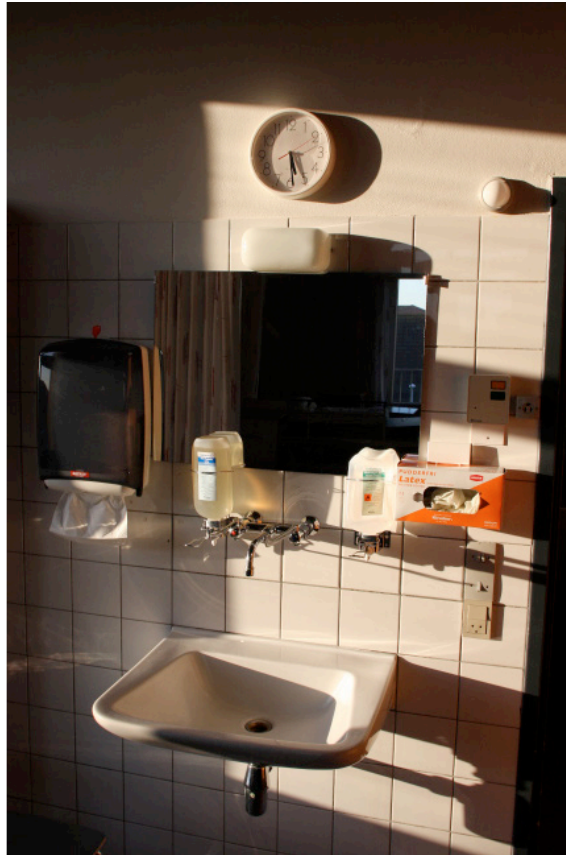
EXPERIENCING ATMOSPHERE



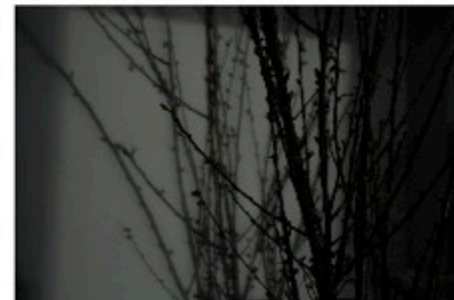
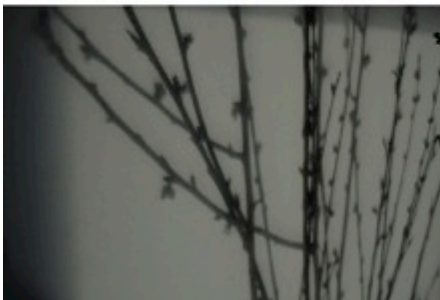
Stidsen, Kirkegaard 2013



LIGHT CHARACTERISTICS



LIGHT INFORMATION

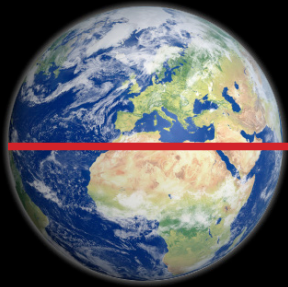


LIGHT FUNCTION



'Human factors in lighting', Boyce PR. 2003

SPACE LOCATION



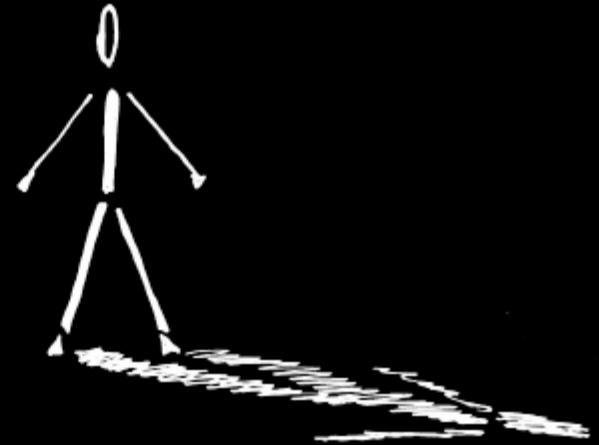
Equator



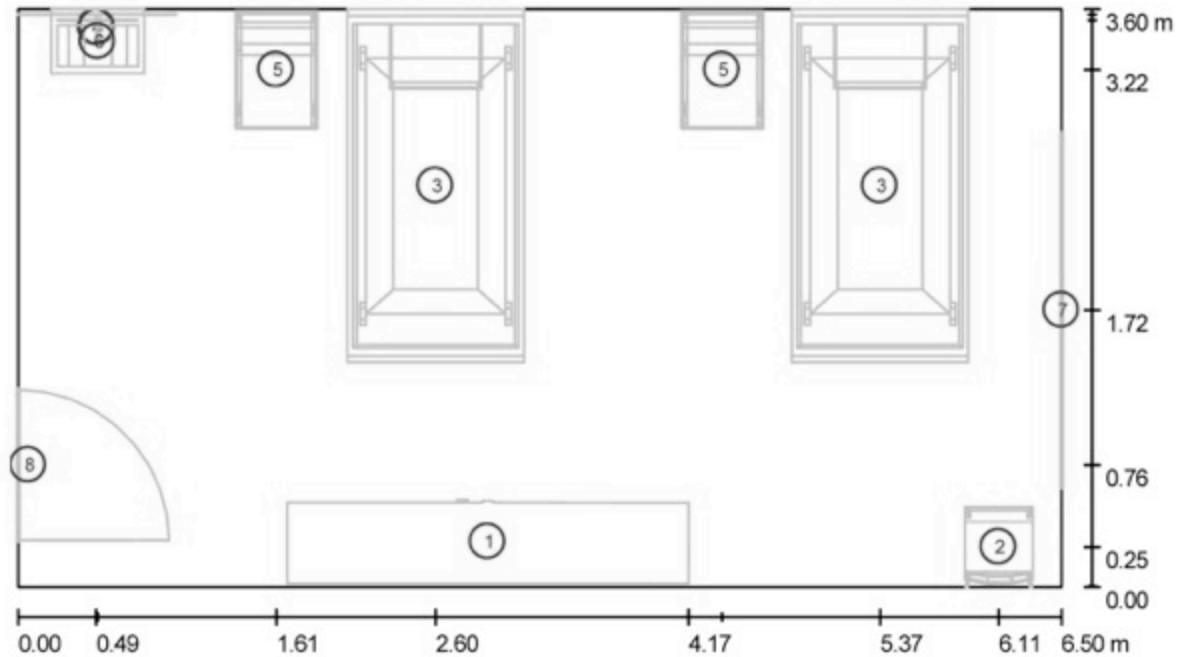
SPACE LOCATION



North



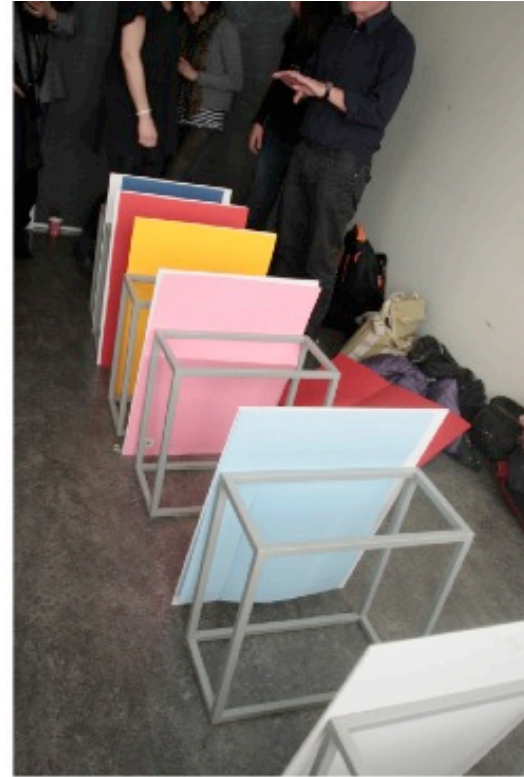
SPATIAL COMPOSITION



SPACE INTERIOR DESIGN



SPACE SURFACE



SPACE SURFACE



SPACE SURFACE



TIME SEASON



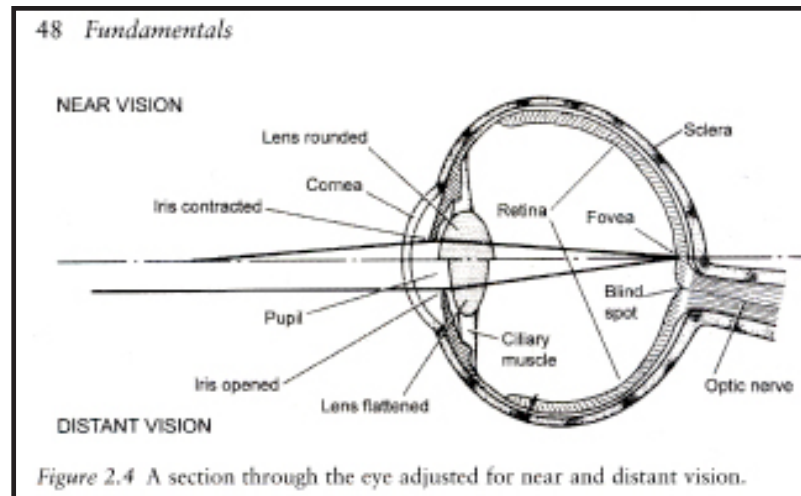
TIME PERIOD



USER CHARACTERISTICS



USER PLEASURE



Physical Pleasure

Patrick Jordan 'The four pleasures' 2000

USER PLEASURE



Psychological Pleasure

USER - PLEASURE



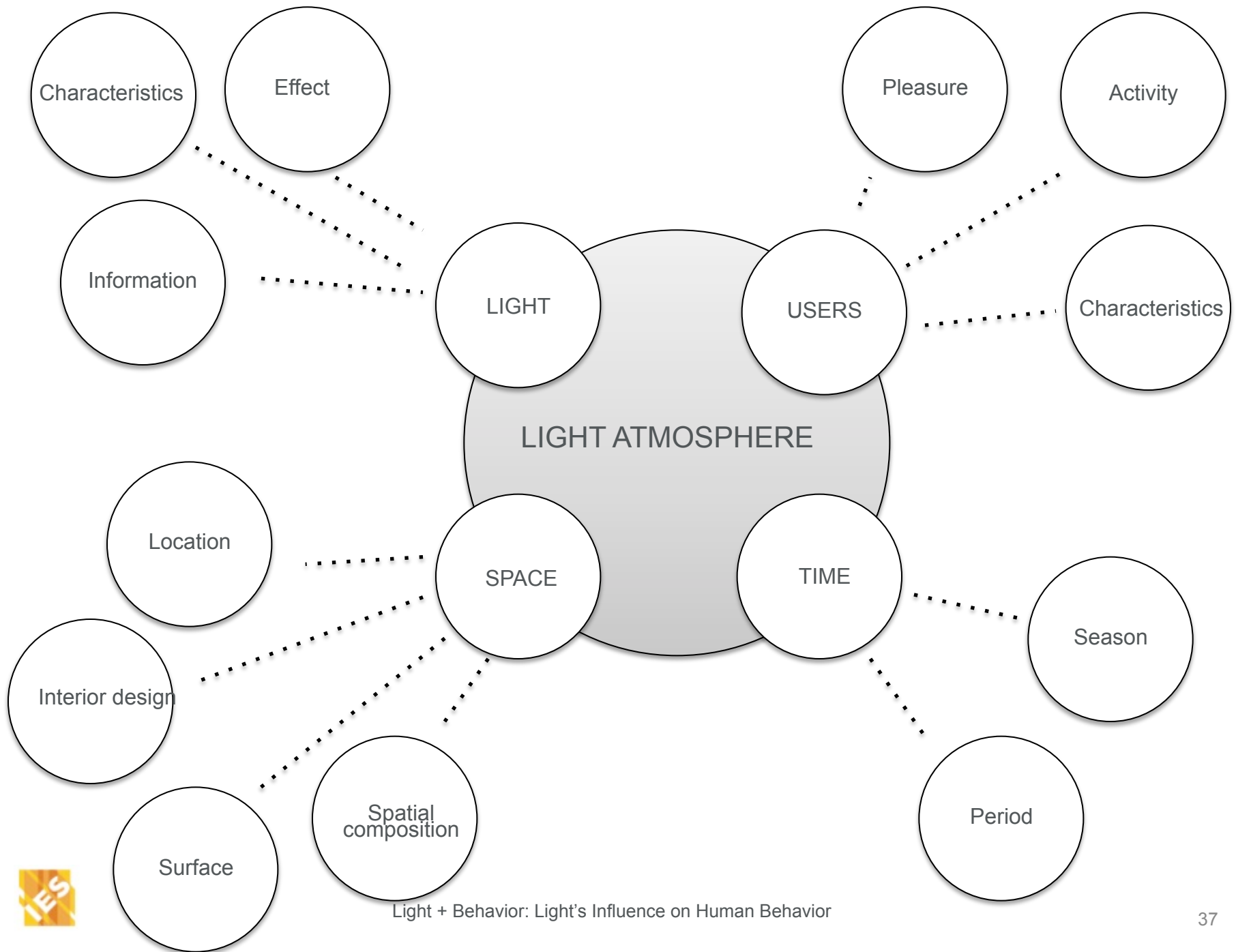
Socio Pleasure

USER - PLEASURE

‘To stand in the shadow of a man’.....



Ideo Pleasure



‘The roots of an architectural understanding lie in our architectural experience. In that way we are all affected by an early experience of these spaces, and therefore we unconsciously compare them with later experiences of towns, houses and countryside. ‘
(Zumthor 2006, Zumthor 2006).

Cultural preferences for light

KÜLLER, R., BALLAL, S., LAIKE, T., MIKELLIDES, B. and TONELLO, G., 2006. The impact of light and colour on psychological mood: a cross-cultural study of indoor work environment.

BILLE, M. and SØRENSEN, T.F., 2007. Anthropology of Luminosity: The Agency of Light.

PARK, N., PAE, J.Y. and MENEELY, J., 2010. Cultural Preferences in Hotel Guestroom

STIDSEN, L.M. and KIRKEGAARD, P.H., 2013. A Danish Socio-cultural approach to lighting design - inspiration for the lighting of hospital wards.

BILLE, M., 2014. Lighting up cosy atmosphere in Denmark.

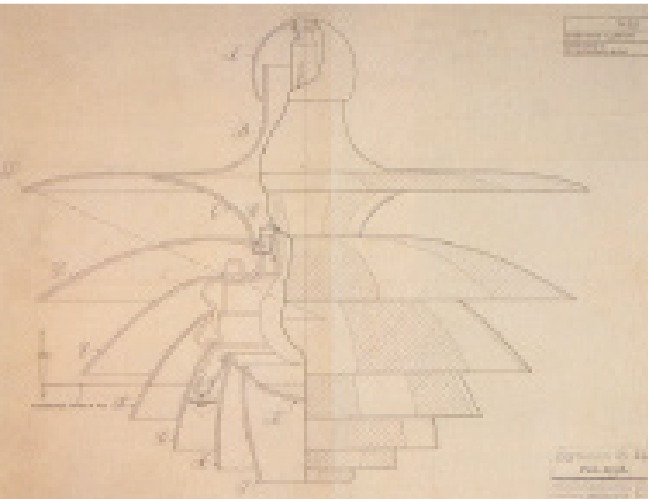




Jordan 'Reception room' Foto: Mikkel Bille, 2008
'Luminosity of Protections'



Danish 'Reception room' Photo: Raakjær 2009,
'Socio cultural aspects of light atmosphere' Stidsen, L. 2009



Explorative studies

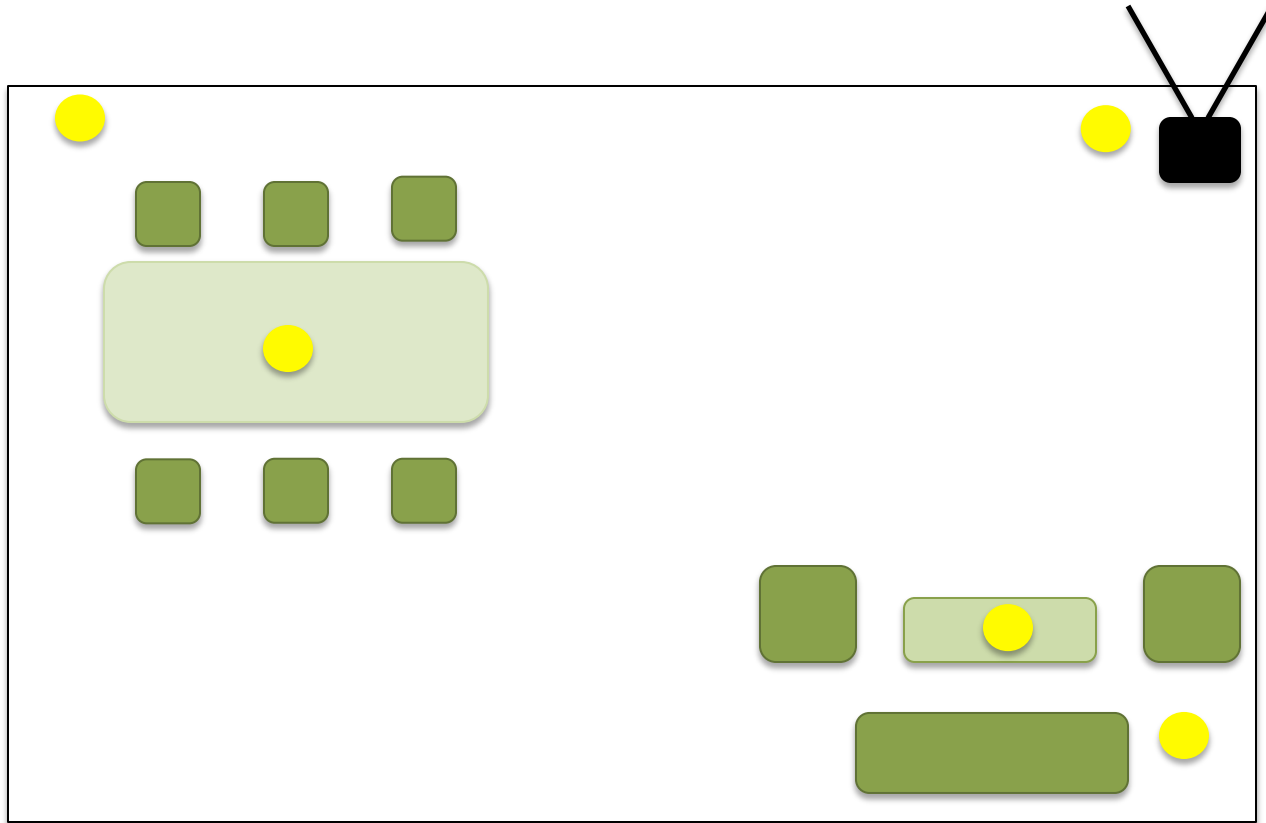
Patients light preferences in
hospital wards - related to light
atmosphere in Danish homes
Stidsen, Bjerrum 2010

Anthropological study
Photo album based on daily
activities and use of light

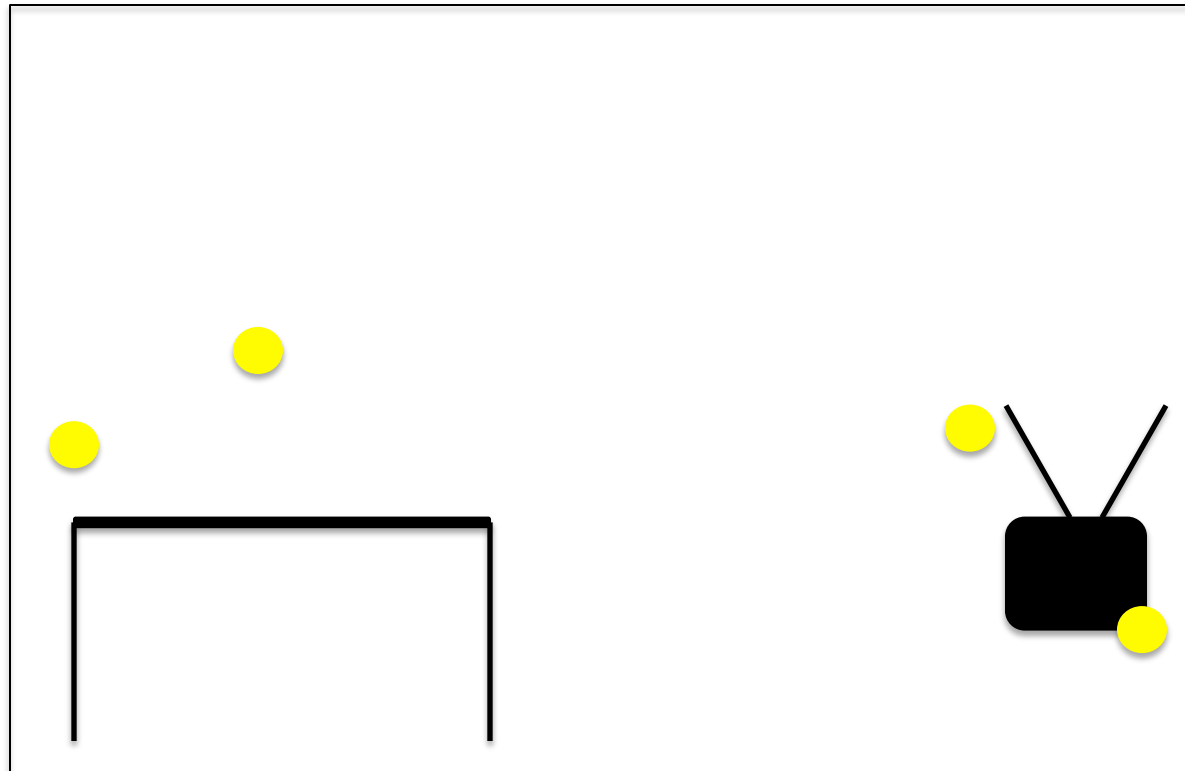
Results:
Vertically and horizontal zoning



Livingroom



Livingroom



Explorative studies

Design trend magazine

1961-2010

3500 images

Room categories

Horisontal and vertical zoning

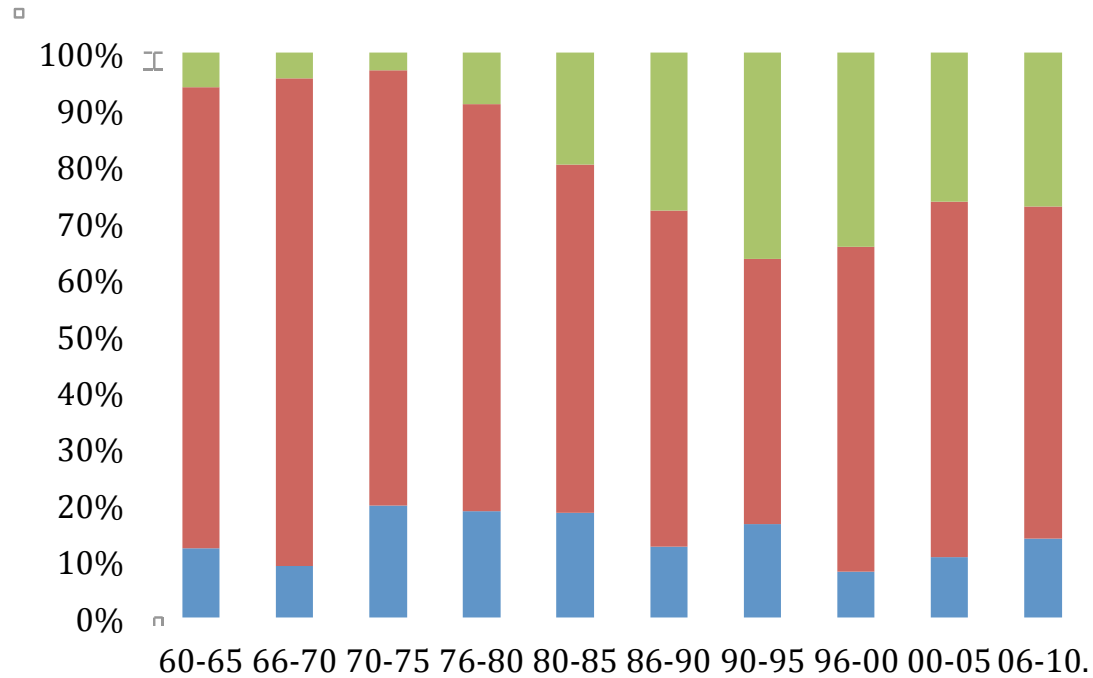
Space appearance



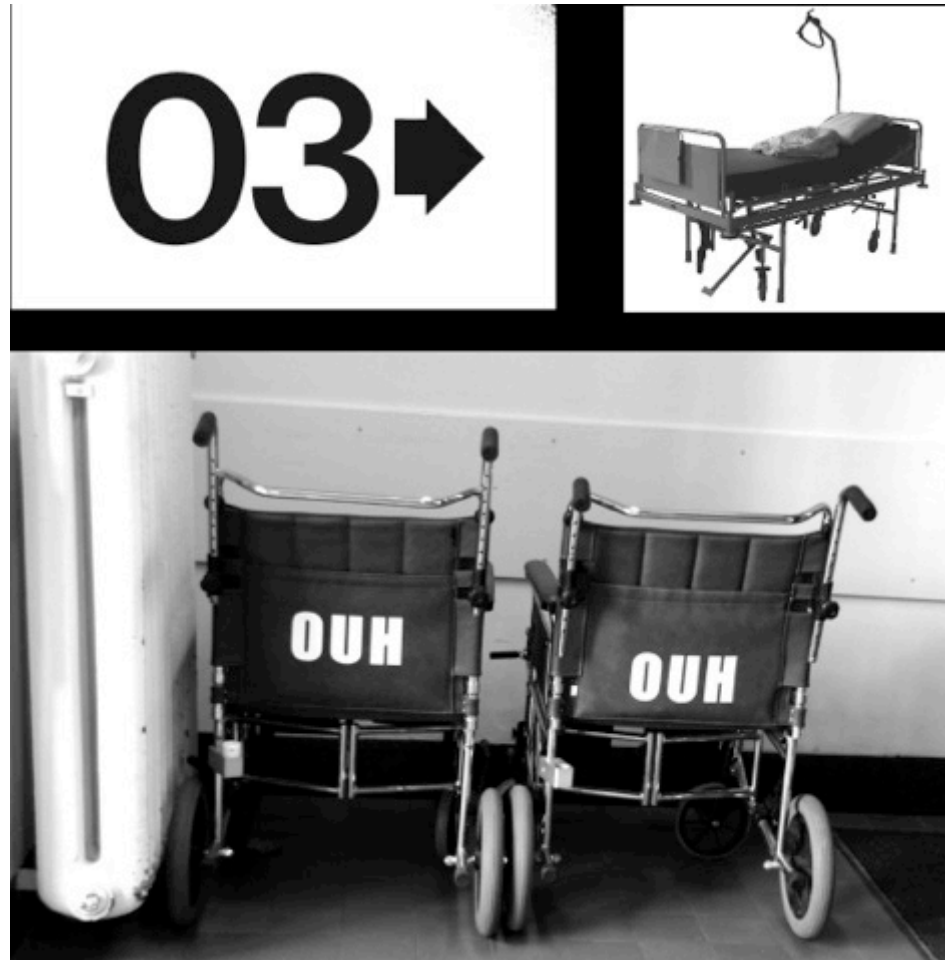
Explorative studies

Activity	Horizontal	Vertical
Upstanding activity Walking/Working	High Lighting Scenario	Centre of space
Sitting activity Conversation /TV	Centre Lighting Scenario	Near the walls
Going to sleep relaxation	Low Lighting Scenario	Near the walls

LIVINGROOM



PILOT STUDY

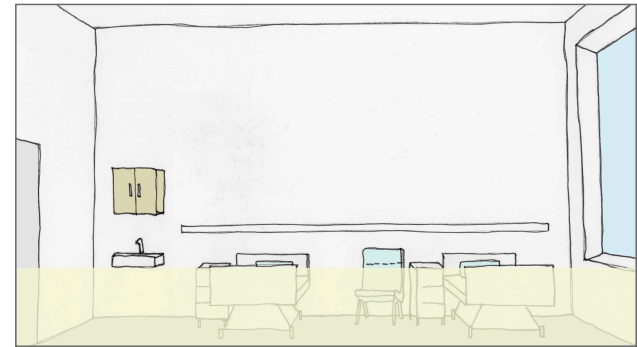


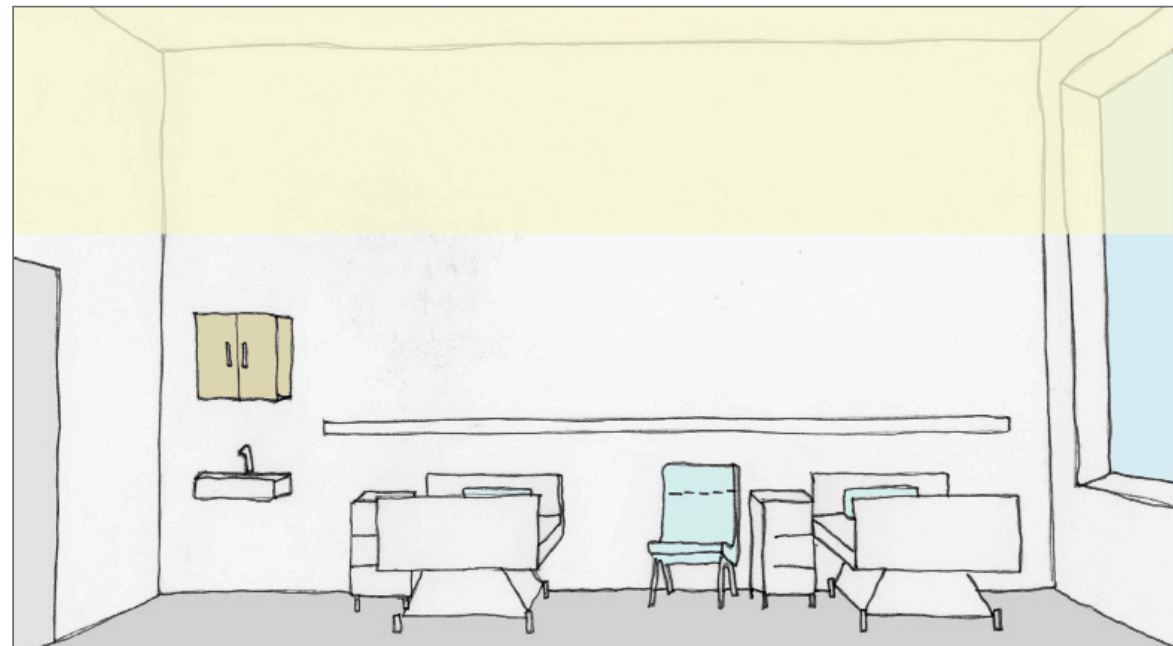
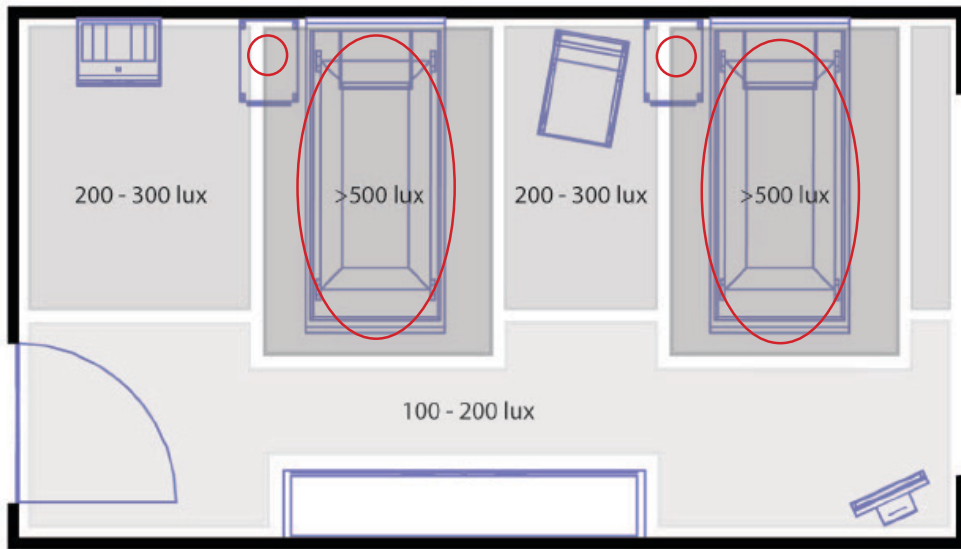
Light + Behavior: Light's Influence on Human Behavior

TRADITIONAL WARD LIGHTING

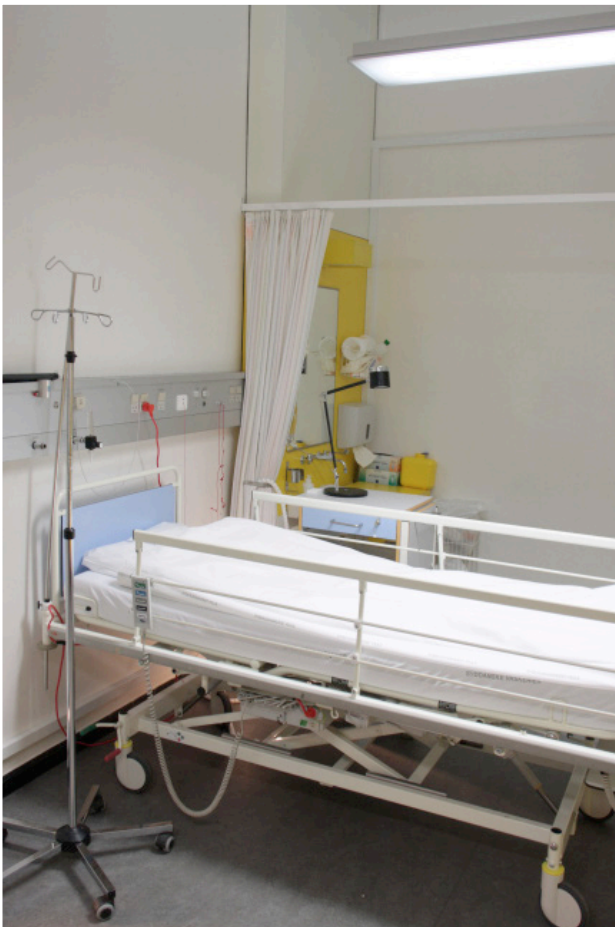


DESIGNED WARD LIGHTING



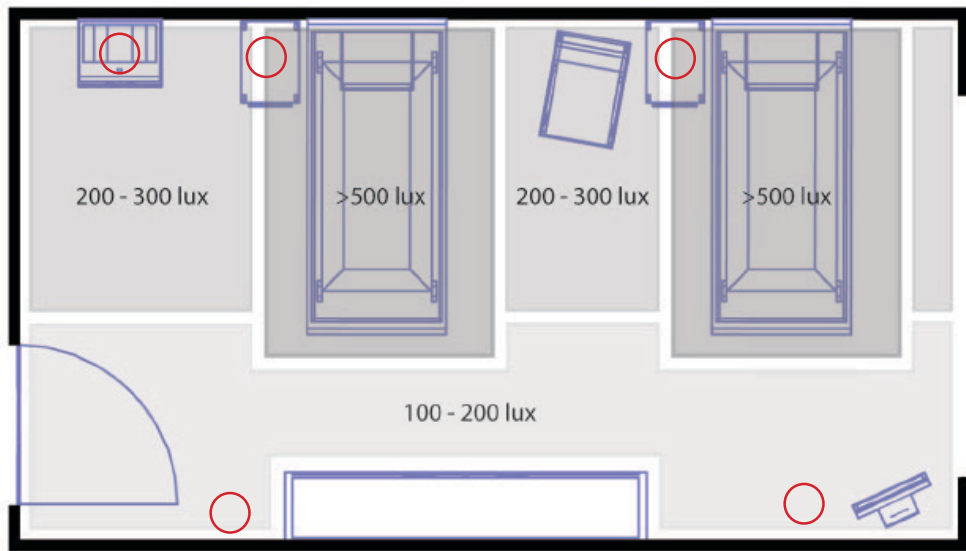


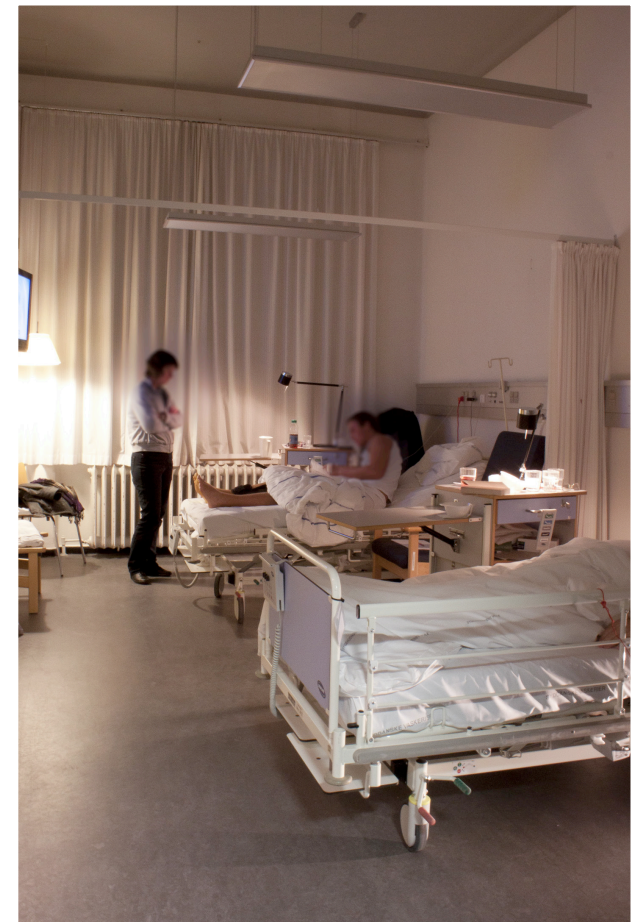
Light + Behavior: Light's Influence on Human Behavior



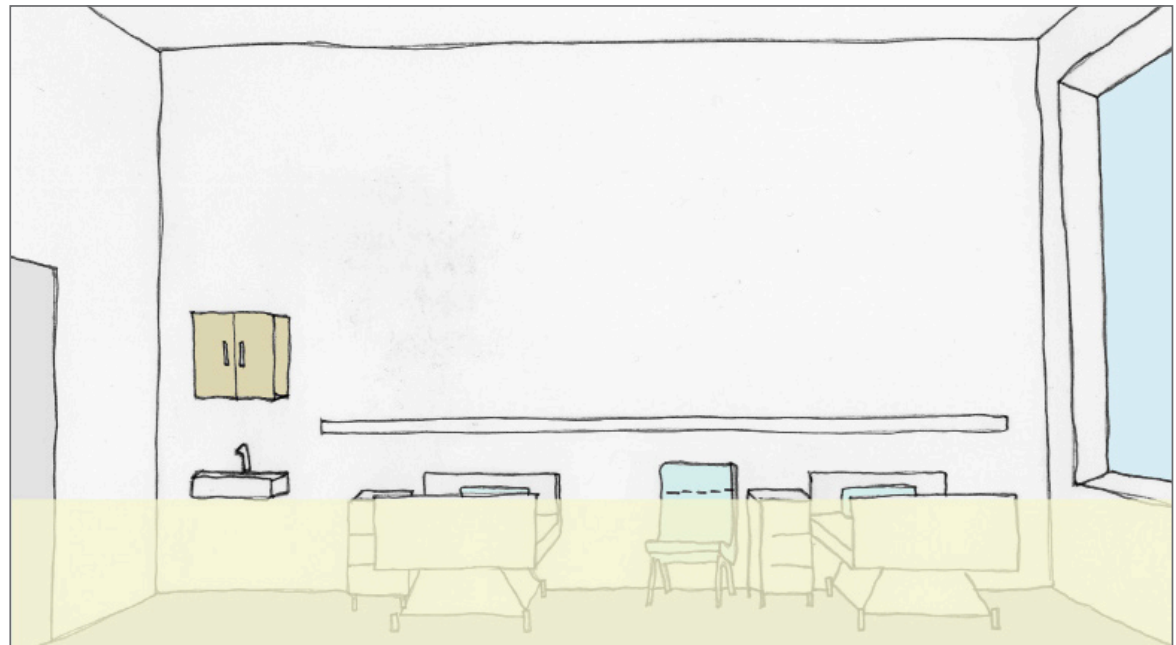
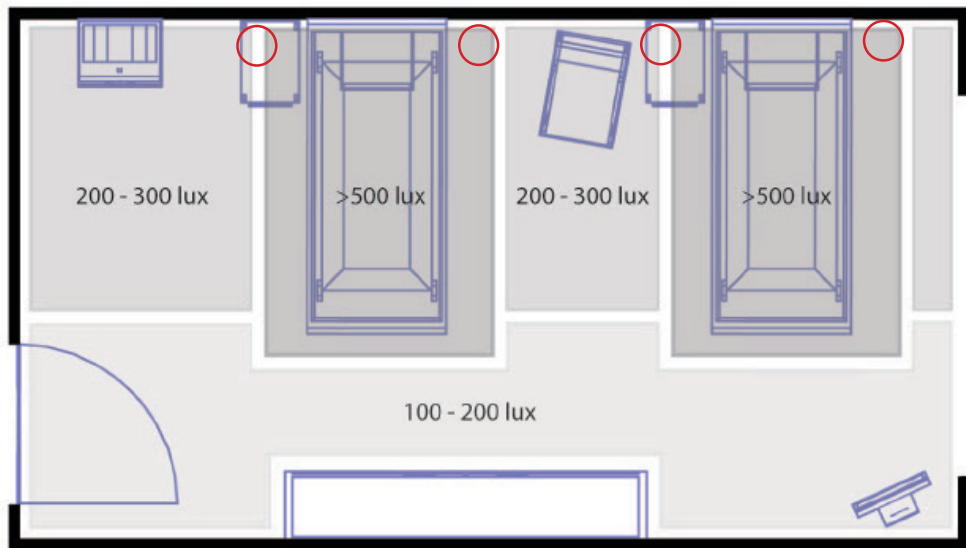
HIGHT LIGHT ZONE







CENTRE LIGHT ZONE





LOW LIGHT ZONE





Traditional ward lighting



vs. Designed ward lighting

SED

Semantic Environmental Description

Rikard Küller

Physical Environmental Eight factors	
Pleasantness	Comfort, beauty and security
Complexity	Liveliness and variety
Unity	How well it fits together
Enclosedness	Size and degree of demarcation
Potency	Intrinsic force
Social Status	Economic and social
Affections	Sense of identity, well known
Originality	Unusual surprising

Designed
Traditional

